

**REMARKS**

Claims 1, 3-6, and 10-13 are all the claims pending in the application, prior to the present Amendment.

Applicants have amended claim 1, based on the description at page 13, line 18 through page 15, line 12 of the specification, and page 18, last three lines to page 19, line 12. Applicants have canceled claims 4 and 5 and have amended withdrawn claim 6. Applicants note that in presenting claim 6 as listed above, applicants have employed italics instead of underlining for *Escherichia coli*. Claim 13 has been amended based on the description at page 8, line 6 through page 9, line 6 of the specification. Applicants have added new claims 14 and 15. Claim 15 is readable on the elected species.

Claim 3 has been objected to for failing to further limit the subject matter of a previous claim.

Applicants have canceled claim 3. Accordingly, applicants request withdrawal of this objection.

Claims 1, 3, and 10 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite with respect to the description of “an enzyme source”.

As discussed above, applicants have canceled claim 3, thus leaving claims 1 and 10 as being subject to this rejection.

Applicants have amended claim 1 as set forth above. Claim 1 as amended does not employ the term “an enzyme source” and simplifies the description of the process. Applicants submit that the above amendment to claim 1 overcomes the rejection based on the second

paragraph of 35 U.S.C. § 112 for claims 1 and 10. Accordingly, applicants request withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

Claim 13 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Whitney et al (1974) (*Advances in Chemistry*, Vol. 130: 270-80) and the general knowledge in the art.

Applicants submit that claim 13 is not rendered obvious by Whitney et al and the general knowledge in the art.

In the present Office Action, the Examiner stated “[w]hile unexpected results may be patentable, the unexpected result must be part of the claim to be patentable.” See page 8, Office Action of January 7, 2009. Applicants disagree. Unexpected results do not need to be part of the claim to be patentable. For example, in the case *In re Wiechart*, a 7-fold improvement of activity over the prior art was held sufficient to rebut a *prima facie* case of obviousness based on close structural similarity, even though the claims at issue recited only the structure of the compound and not the unexpected result, i.e. the activity. 370 F.2d 927, 152 USPQ 247 (CCPA 1967). See also MPEP § 2144.09(VII). Therefore, applicants submit that unexpected results may rebut a *prima facie* case of obviousness without the unexpected results being recited in the claims.

In the present case, as described in the specification, applicants have found that the purity of optically active 1,4-pentanediol was increased when an acidic or neutralized aqueous solution of 5-hydroxy-2-pentanone produced by acidic hydrolysis of 2-acetyl- $\gamma$ -butyrolactone was used in the reduction step. In Whitney et al, there appears to be no description of such solution or effect. In fact, applicants submit that it is impossible to reduce 5-hydroxy-2-pentanone in an aqueous

solution by the method described in Whitney et al. Applicants submit that the presently claimed invention is unpredictable from Whitney et al.

In view of the above, applicants request reconsideration and withdrawal of the § 103 rejection of claim 13.

Claims 1-3, 7-10 and 13 have been rejected under the second paragraph of 35 U.S.C. § 112 as based on a non-enabling disclosure for the breadth of products (e.g., enzyme sources, enzymes) etc.

As discussed above, applicants have amended claim 1 to not refer to “an enzyme source” and to simplify the claim language. Applicants submit that amended claim 1 is enabled by the present specification.

With respect to claim 13, since it does not recite enzyme sources, applicants submit that claim 13 is enabled. Applicants point out that the specification discloses, in paragraphs [0037] to [0041], a number of asymmetric reduction methods that do not involve enzyme sources. Applicants submit that the specification clearly enables one of ordinary skill in the art to practice the method of claim 13.

In view of the above, applicants request withdrawal of the rejection under the second paragraph of 35 U.S.C. § 112.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

AMENDMENT UNDER 37 C.F.R. § 1.114(c)  
U.S. Appln. No.: 10/586,337

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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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